

# Introduction to the International Council for Systems Engineering Infrastructure Working Group (IWG)

Prepared by IWG Chicagoland Chapter member, Jon W. Mooney

For Sector 1 North/Great Lakes Regional Event: May 16, 2019 Technical Program

**Infrastructure  
Week 2019**



May 13-20 // #BuildForTomorrow



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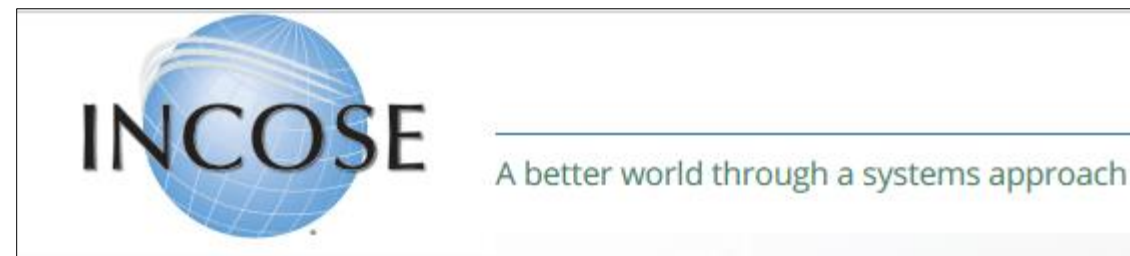
# Introduction to the Infrastructure Working Group (IWG)

<b>Agile Systems and Systems Engineering</b> Rick Dove / Ron Lyells, Larri Rosser, Kevin Gunn Transformational	<b>Anti-Terrorism International</b> Bill Mackey Application Domains	<b>Architecture</b> M. Wilkinson / R. Martin / A. Kumar / J.L. Garnier Process Enablers	<b>Automotive</b> Alain Dauron / Gary Rushton Application Domains	<b>Challenge Team</b> 	<b>Object-Oriented Systems Engineering Method (OOSEM)</b> Howard Lykins / Loren Walker Transformational	<b>Oil and Gas</b> Christopher Bellows / Alisha Pate Application Domains	<b>PM-SE Integration</b> Jean-Claude Roussel / Tina Srivastava / John Process Enablers	<b>Power &amp; Energy Systems</b> Ray Beach / John Juhasz Application Domains	<b>Process Improvement</b> Jeffrey Brown Transformational
<b>Competency</b> Cliff Whitcomb / Mimi Helsey Analytic Enablers	<b>Complex Systems</b> Jimmie McEver / Michael Watson Analytic Enablers	<b>Configuration Management</b> Paul Nelson / Dale Brown / Adriana DSouza Process Enablers	<b>Critical Infrastructure Protection and Recovery</b> M. Kerman / J. Juhasz / A. Adebajo Application Domains	<b>Decision Analysis</b> Frank Salvatore Analytic Enablers	<b>Product Line Engineering</b> H. Chale / R. Darbin / C. Krueger Analytic Enablers	<b>Requirements</b> L. Wheatcraft / M. Ryan / R. Zinni / K. Baksa / J. Process Enablers	<b>Risk Management</b> Jack Stein / Bob Parro Process Enablers	<b>Space Systems</b> David Kaslow / Alejandro Levi Application Domains	<b>System of Systems</b> Alan Harding / Judith Dahmann Analytic Enablers
<b>Defense Systems</b> Karl Geist Application Domains	<b>Digital Engineering Information Exchange</b> John Coleman / Frank Salvatore / Chris Schreiber Transformational	<b>Enterprise Systems</b> W. Donaldson / M. Harmon / K. Nortrup Process Enablers	<b>Global Earth Observation System of Systems (GEOSS)</b> Ken Crowder Application Domains	<b>Healthcare</b> Bob Malins / Chris Unger Application Domains	<b>System Safety</b> Duncan Kemp / Meaghan O'Neil Analytic Enablers	<b>System Safety Integration</b> TBD Transformational	<b>Systems and Software Interface</b> S. Sheard / M. Pafford / E. Kienast / J. Marvin Transformational	<b>Systems Engineering Case Study</b> Jorg Lalk Analytic Enablers	<b>Systems Engineering Quality Management (SEQM)</b> Barclay Brown / Bill Scheible / Hazel Woodcock Process Enablers
<b>Human Systems Integration</b> Guy Boy Analytic Enablers	<b>Infrastructure</b> A. Kouassi / L. Uden / M. van de Ven Application Domains	<b>Integration, Verification &amp; Validation</b> Jim Armstrong / Russell Kubycheck Process Enablers	<b>Knowledge Management &amp; Ontologies</b> Juan Llorens / Anabel Fraga Transformational	<b>Lean Systems Engineering</b> Arthur Hyde Transformational	<b>Systems Science</b> J. Martin / R. Edson / S. Natarajan Transformational	<b>Systems Security Engineering</b> Rick Dove / Keith Willett / Beth Wilson / Ken Kepchar Analytic Enablers	<b>Telecommunications</b> John Risson / Daniel Spencer Transformational	<b>Tools Integration &amp; Model Lifecycle Management</b> John Nallon / Lonnie VanZandt Transformational	<b>Training</b> Gabriela Coe Analytic Enablers
<b>MBSE Initiative</b> Mark Sampson Transformational	<b>MBSE Patterns</b> Bill Schindel / Troy Peterson Transformational	<b>Measurement</b> Paul Frenz / Beth O'Donnell Process Enablers	<b>Model-based Conceptual Design</b> Randall Satterthwaite / Robert Lecorchick Transformational	<b>Natural Systems</b> Curt McNamara / Randy Anway Analytic Enablers	<b>Transportation</b> Dale Brown / Denis Simpson / David Rojas Application Domains	<b>Value Proposition Initiative</b> Juan Amenabar Transformational	<b>Very Small Entities</b> Robinson / Patak / Laporte / Kaffenberger Transformational		



# IWG History

- IS 1995: Various INCOSE members show interest in forming Facilities Systems Engineering and Facilities Configuration interest groups.
- IW 1996: Facilities Systems Engineering Interest Group (FSEIG) initiated with facilities configuration included within it.
- IS 1996: First meeting. Ratified charter.
- IW 1997: Identified products and revised charter to a Working Group.
- IS 1999: Expanded scope to Infrastructure and changed name to Infrastructure Systems Engineering Working Group (ISEWG); later shortened to (IWG).



# Infrastructure Domains

- Utilities—Electricity, water, sewerage, gas, telecommunication
- Economic infrastructure—Transport facilities, ports, airports, utilities
- Transport facilities—Roads, bridges, rail, trams
- Social infrastructure—Hospitals, schools
- Defence infrastructure—Military facilities, research establishments, testing facilities
- Commercial facilities—Shopping centers, technology parks, office buildings
- Industrial facilities—Manufacturing facilities, processing plants, mining



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# IWG Charter

- The Infrastructure Working Group Charter is to bring together designers, builders, and operators of economic and physical infrastructure systems to advance the application of systems engineering.
- This Working Group aligns with the strategic aim of INCOSE to advance the application of systems engineering outside its core aerospace and defense domain.



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# IWG Scope

- Physical infrastructure issues
- Construction of public and commercial facilities and networks necessary for the economic and physical well being of society
- Collaborate with other domain specific Working Groups
  - Transportation Working Group
  - Power and Energy Systems Working Group





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# IWG Activities and Products

## Working Group Products

### Charter and quad chart

-  Infrastructure\_Charter AK Revision 3 Feb 12 2019
-  Infrastructure Quad chart IW2019

### Brochures

-  001-Design Engineering and SE Pamphlet
-  002-Systems Integration Pamphlet
-  003-Requirements Management pamphlet
-  004-Choosing the Best Contracting Strategy pamphlet
-  005-Specialty Engineering Pamphlet

### Guides

-  Application of SE in Large Infrastructure Projects

### Meeting Minutes

Meeting minutes will be published at the Connect-site -> Working Groups -> Infrastructure Working Group

### Collaboration with Other Professional Groups

NETLIPSE (Network on the management and organisation of large infrastructure projects in Europe)

## INCOSE WEB PAGE



<https://www.incose.org/incose-member-resources/working-groups/Application/infrastructure>



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# IWG Meetings/Communications

- IWG Monthly Call
  - Our next monthly call is scheduled for Thursday 5/23/19 at 1600 (New York Time). Call-in number and participant code.
- IWG collaboration site
  - [Connect.incose.org](http://Connect.incose.org)
- IS 2019
  - July 20-25, Orlando, Florida



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# IWG News: Interview with IWG co-chair, Marcel Van de Ven on Systems Engineering for Buildings



Heijmans' Senior Consultant on SE, Marcel van de Ven, is leading the way on applying Systems Engineering to building projects in Europe



Image © Bouwcombinatie EMA

Systems Engineering assures the new European Medicines Agency building will complete on time



Image © Heijmans Building Technology

NACH Mockup of a normal workspace at New Amsterdam Courthouse



Image © KAAN Architecten

For the New Amsterdam Courthouse project, Systems Engineering allows NACH to achieve the right mix of performance such as good acoustics and stately appearance



[www.wconline.com](http://www.wconline.com)

Marcel's interview will appear in the June 2019 issue of Walls & Ceilings Magazine!



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# How to Join IWG

## CHAIR

Alain kouassi (alain.kouassi@parsons)

## MEMBERS

83

## CO-CHAIRS

Laura Uden (laura@nsieng.com)

Marcel van de Ven (mtfmvandeven@gmail.com)

## LOCAL IWG MEMBER

Jon W Mooney (acoustics@jwmooney.com)

## INCOSE WEB PAGE



<https://www.incose.org/incose-member-resources/working-groups/Application/infrastructure>

Join us through your personal INCOSE member profile page or send us an email!



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